Making Civil Inroads
Over land and water

INSIDE
Expanding our civil portfolio
PCL’s measure of success
South Carolina was home to PCL Civil for nearly two years, while we completed our first movable bridge project in the mid-Atlantic US region. Under a design-build contract with the SCDOT, we replaced the twelve-span Ben Sawyer Swing Bridge superstructure and the swing span. During the final ten-day shutdown, many of the tradespeople worked three 8-hour shifts to float out the existing, operating swing span and replace it with the single new swing span. The work was made more taxing when the region was hit by a snowfall that was of a magnitude that hadn’t been seen in more than twenty years!

Disraeli Bridges Project, Winnipeg, Manitoba
Owner: City of Winnipeg
Contract Value: $136.8 million CDN
Primary Consultant: Wardrop Engineering Inc.
Construction Schedule: November 2010 to July 2013
Contractor: PCL Constructors Canada Inc. (Winnipeg)

Innovative thinking helped PCL Winnipeg secure its largest civil project to date: the $136.8-million Disraeli Bridges project. While the request for proposals (RFP) called for refurbishing the two existing bridge structures, our design called for two new structures. This option maintains traffic flow during the entire schedule, eliminating the need for a sixteen-month traffic closure. Secondly, in keeping with the RFP, our design included a new superstructure for a third Active Transportation bridge, but with a cost-saving twist. We’re building it with the existing River Bridge foundation and piers. This flagship city project will be performed as a public-private partnership – a first for PCL Winnipeg!

Ben Sawyer Swing Bridge Replacement
Charleston, South Carolina
Owner: South Carolina Department of Transportation (SCDOT)
Contract Value: $31 million USD
Design Consultant: Hardesty & Hanover, LLP
Construction Schedule: November 2008 – May 2010
Contractor: PCL Civil Constructors, Inc. (Tampa)
Completing thirty-four movable bridge rehabilitations or replacements in the last fifteen years put PCL Civil in the lead to win a lift bridge replacement in Virginia. The VDOT selected a vertical lift design for this replacement structure, as it allows construction to proceed over the existing double-leaf bascule bridge, instead of beside it, which would have proved difficult along the heavily populated river bank. The new, 1,098-foot bridge will clear the navigable channel by 35 feet (currently at 19 feet) when the lift span is closed, and by up to 135 feet when open, providing more clearance for marine traffic. To translate the project into a three-dimensional visual representation that will assist with constructability, we’re using the Building Information Modeling software known as Tekla Structures.

On the Spokane Viaduct Widening Project, PCL Construction is using Google Sketch Up, in lieu of the more traditional methods of AutoCAD or BIM, to enhance project coordination and planning. The software has provided the team with 360-degree project views, allowing for timely communication and response to everything from site layout to project sequencing. One of the value engineering recommendations that came out of our research, to replace cast-in-place girders with precast girders, achieved significant schedule savings for the Owner. We have successfully used this 3-D technology on other projects during preconstruction to highlight major work sequencing, and during construction to coordinate the work of our subcontractors and site crews – and we’ll use it again!
Virtual Construction –

PCL measures the success of every project by the value we provide to our clients; this value can be determined by four factors: safety, cost, time, and quality. One of the most effective methods of optimizing these factors is to integrate virtual construction (VC) into PCL’s preconstruction and construction services. When used effectively, VC has created significant returns on the investment of time and effort on more than 100 of our projects across North America.

Canadian Human Rights Museum

Owner: Canadian Museum for Human Rights
Contract Value: $212 million CDN
Primary Consultants: Antoine Predock Architects, Smith Carter Architects and Engineers
Contractor: PCL Constructors Canada, Inc. (Winnipeg)

The Canadian Museum for Human Rights is Canada's newest national museum, with a mission to enhance the understanding of human rights, and to encourage reflection and dialogue through one of the most innovative buildings in Canada. This 260,000-square-foot museum consists of composite concrete and a structural steel frame, founded on precast piles and CIP caissons, with a glazed steel structure and masonry stone exterior.

Since the project was designed using BIM, implementing virtual construction on the project was less about the technology, and more about the collaboration between the Owner, designers, and PCL.

The project’s use of VC greatly improved the ability to communicate and coordinate the complexity of this amazing project, from very early budget and planning needs, through coordination efforts, to construction. For example, all temporary structural shores on the batter concrete walls were modeled and coordinated with the structural steel model. This provided precise measurements for installation, eliminating any requirement to relocate shores once steel installation began.

How BIM added value

• The ability to take material quantities directly from BIM increased budget accuracy.
• Physical mock-ups built with information directly from BIM ensured accurate representations of site conditions.
• Creating 4-D schedules (3-D model + construction schedule) communicated the tasks and critical milestones for the project.
• Clash Detection (interference check) of all construction disciplines eliminated rework.
• Lift drawing packages were created for PCL’s own forces and subtrades for all aspects of concrete construction.
Virtual construction significantly enhances our abilities to collect, manage, and visualize the information so vital to the design, construction, and continued operation of every project. VC enables us to effectively share information and collaborate with project stakeholders to provide a completed project that meets your quality requirements on time, and within budget. Experience has shown the benefits of VC for our clients and partners, and how to maximize the value that VC can bring to your project. This experience and the information-handling capabilities of VC create an unbeatable combination for projects and our partners.
PCL’s Heavy Industrial companies demonstrate diversity

PCL’s portfolio in Heavy Industrial construction continues to grow, through projects that serve a variety of customer needs. We are seeing once again that there really isn’t anywhere on the North American continent these builders won’t go.

PCL’s foray into the world of industrial construction started sixty years ago in Alberta with the construction of power-generating facilities and a major polythene plant for Canadian Industries Limited (CIL) in Calgary. Through the decades, our Heavy Industrial companies have traveled to most parts of the North American continent to build all types of different projects for our clients.

The new millennium has seen the acquisition and addition of new industrial companies in Canada and the US. These new companies are strengthening our abilities to meet our customers’ needs in diverse industries and different parts of the continent.

Here are some examples of what our industrial companies are up to:

- Atlanta-based Teton Industrial Construction, Inc. is gaining a stronger foothold in the Gulf Coast industrial area of Texas with major oil and gas refinery projects and a power project.
- Edmonton-based PCL Industrial Management Inc. and PCL Industrial Constructors Inc. are back in Saskatchewan working on a potash plant and an oil and gas refinery. They are, as well, gearing up in northern Alberta for another major oil sands project.
- Bakersfield-based PCL Industrial Services, Inc. is expanding in California, and is building its expertise in alternative energy construction with another solar energy project.
- Edmonton-based PCL Intraccon Power Inc.’s portfolio of current projects includes the SaskPower Yellowhead Simple Cycle Gas Turbines Project, Electrical/Instrumentation Works, in North Battleford, Saskatchewan.
Project Brightfield
Location: Bakersfield, California
Owner: Chevron Energy Solutions Company
Contract Value: $1 million USD
Primary Consultant: Chevron Energy Solutions Company
Construction Schedule: August 2009 – December 2009
Contractor: PCL Industrial Services, Inc. (Bakersfield)

Shell Athabasca Oil Sands Project Downstream Expansion – RHC Unit 1 and Other Projects
Location: Fort Saskatchewan, Alberta
Owner: Shell Canada Energy
Engineer: Bechtel
Construction Schedule: May 2007 – September 2010
Contractor: PCL Industrial Constructors Inc. (Edmonton)

Deep Conversion Sulfur Block
Location: Port Arthur, Texas
Owner: TOTAL Petrochemicals US, Inc.
Contract Value: Over $100 million USD
Engineer: Fluor Enterprises, Inc.
Construction Schedule: August 2008 – November 2010
Contractor: Teton Industrial Construction, Inc.

CCRL Refinery Expansion Project, Section V
Location: Regina, Saskatchewan
Owner: Consumers’ Cooperative Refineries Limited (CCRL)
Contract Value: $140 million CDN
Engineer: Mustang Engineering
Construction Schedule: October 2009 – April 2012
Contractor: PCL Industrial Management Inc. (Edmonton)

Agrium - Project VAULT
Location: Vanscoy, Saskatchewan
Owner: Agrium Inc.
Contract Value: $765 million CDN
Engineer: SNC-Lavalin Inc.
Construction Schedule: November 2009 – January 2014
Contractor: PCL Industrial Management Inc. (Edmonton)

OIL and GAS
Texas, Alberta, and Saskatchewan

SOLAR ENERGY
California

POTASH
Saskatchewan
The US Green Building Council (USGBC) and the Canada Green Building Council (CaGBC) have introduced new professional credentials for the Leadership in Energy and Environmental Design (LEED®) green building certification system. The two organizations are working through the Green Building Certification Institute (GBCI), the organization now responsible for administering LEED professional credentials. PCL has responded to the changes by providing our sustainable construction professionals with the up-to-date information they need to gain these credentials, and to keep them current under the Credentialing Maintenance Program (CMP).

Our sustainable construction managers in the US and Canada meet regularly with district LEED champions, facilitate information sessions for all employees in our operating offices, and communicate internally to keep employees abreast of new developments. We have over 325 LEED Accredited Professionals (LEED APs) and are seeing a great deal of interest from employees who want to pursue the new LEED professional credentials (LEED Green Associate, and LEED AP with specialty), as well as from already accredited professionals who want to pursue the LEED AP with specialty credential. LEED APs who enroll in the CMP have the option to complete the prescriptive continuing education requirements or take a specialty exam.

We have created exam preparation training and study sessions for the new LEED Green Associate exam and are in the process of updating our already robust training program for LEED APs who are pursuing a specialty credential. The LEED AP program with specialty training will focus on individual sessions that review each LEED credit category in detail. As part of our ongoing effort to provide the best service to our clients, we are also offering these sessions to individuals outside PCL.

Our commitment to employing LEED professionals is strong, but we are also committed to making education and training available to all of our operational employees whether or not they pursue professional credentials. This enables our project teams to better serve our clients and design teams with the most up-to-date knowledge about green building strategies and the specifics of rating systems.

Why would USGBC and CaGBC members want to change the LEED professional credentials?
Concerns accumulated due to the lack of distinction amongst the 100,000 North Americans who had become LEED APs since 2001. Anyone who passed the exam became a LEED Accredited Professional. It didn’t matter if you had been involved with a LEED project or if you worked for a company associated with designing, building, or supplying materials or services for a sustainable project.

GBCI has implemented the new credentials in an effort to recognize various levels of knowledge and expertise, create distinction between professionals, and include existing LEED APs in the new program. In addition, GBCI wants to ensure that LEED professional credentials maintain their significance in the marketplace.
The new LEED® professional credential program

USGBC and CaGBC have responded to the collective recommendation of their membership to update the LEED professional credentials with three levels of excellence, eligibility requirements, and credentialing maintenance.

The three levels of excellence, or tiers, now distinguish practitioners with various levels of knowledge.

**Tier I – LEED Green Associate**
- Basic understanding and support of green building practices

**Tier II – LEED AP with specialty**
- Advanced level of knowledge in green building practices, in general and within a specialty
- Building Design + Construction (BD+C), Interior Design + Construction (ID+C), Operations + Maintenance (O+M), Neighborhood Development (ND) and Homes (H)

**Tier III – LEED Fellow**
- Extraordinary class of professionals who provide value and advance green building practices

**Eligibility requirements**

All candidates who wish to pursue LEED professional credentials now have to meet certain eligibility requirements. Through the application process for the LEED Green Associate credential, candidates document whether they are employed in a sustainable field, have completed an educational course related to green building, or have supported a registered LEED project. To be eligible for the LEED AP with specialty credential, candidates must demonstrate that they have been extensively involved with a registered LEED project. Once GBCI has approved an application, the candidate can take the appropriate exam.

**Credentialing maintenance requirements**

The process doesn’t end there. As part of the CMP, LEED professionals are now responsible for continuing education (CE) to ensure that they have the latest knowledge and understanding of green building practices, as well as updates to the ever-evolving LEED rating systems. The credentialing maintenance requirements apply to all new LEED professionals and existing LEED APs who opt into the program. The enrollment period for existing LEED APs to opt into the CMP, without having to submit an application or meet the eligibility requirements, is late summer to mid-fall 2011.

CE requirements must be completed on a two-year cycle to maintain the LEED professional credentials, which includes 15 hours for LEED Green Associate (3 hours LEED specific) and 30 hours for LEED AP with specialty (6 hours rating system specific) or LEED professionals always have the option to retest under the appropriate exam.

The response to the CMP has been huge. More than 31,000 professionals have already participated, and an extensive list of resources is available through both the USGBC and CaGBC’s education providers; many of these resources are free and online. LEED professionals may also complete their CE requirements through self-study, USGBC/CaGBC chapter involvement, project participation, or in other ways.

**PCL PEOPLE STAY INVOLVED**

Our employees stay current and involved, and have the opportunity to interact with other industry professionals by attending local USGBC/CaGBC chapter events, and by serving on boards of directors and local committees. The following PCL employees were recently elected to positions within USGBC and CaGBC.

- Alan Levy – Honolulu, Hawaii
  Treasurer - Board of Directors, Hawaii Chapter
- John Voorhees – Honolulu, Hawaii
  Healthcare Committee, Hawaii Chapter
- Troy Braithwaite – Calgary, Alberta
  Board of Directors, CaGBC National Board of Directors, Alberta Chapter
- Randy Storoschuk – Winnipeg, Manitoba
  Secretary - Board of Directors, Manitoba Chapter
- Laura Paul – Toronto, Ontario
  Co-Chair, Emerging green Builders Committee
- Shawn Vanderheyden – Toronto, Ontario
  Vice Chair, Greater Toronto Chapter Chair, Program Committee

PCL is a proud sponsor of both USGBC and CaGBC’s annual conferences. We were well represented at CaGBC’s annual conference this past June and anticipate high participation at USGBC’s Greenbuild conference this November in Chicago. We hope to see you at a USGBC or CaGBC event.
Each year, PCL and its employees donate millions of dollars and countless hours of time to the communities in which we live and build.

Giving back to the community is not only one of PCL’s guiding principles but also part of our culture. Each of our offices across North America organizes events in its community several times a year. These events are intended to give back to the community, but we have found that we receive far more than we give.

The Watch-Care Academy is a private school in Denver, Colorado, that provides quality one-on-one and group instruction to its students, many of whom face educational, family, and economic hardship on a daily basis. The Watch-Care Academy’s mission is to teach the skills of lifelong learning and produce successful and responsible citizens. All students attend on scholarship.

PCL employees toured the school on September 29, 2009. On April 30, 2010, students came for a field trip to the Peter Beaupré Learning Centre at US Head Office.

The wish list of British Columbia’s Richmond Family Place, for their United Way Day of Caring, on June 8, included cleaning the toys in the children’s playground. They also hoped that planter boxes might be built, so program participants could tend to some gardening, a luxury often not available to them where they live.

PCL expanded the initial scope of the project so that, by the end of the day, Richmond Family Place had shining toys and a power-washed outdoor patio area, a new storage shed, and planter boxes complete with healthy new plants awaiting clients to tend them.

PCL provided all lumber and landscaping supplies, freeing Program Coordinator Janice Lambert to focus on clients’ needs, rather than spend hours seeking out donations of materials.

On April 22, the Denver Business Journal hosted the 2nd Annual Partners in Philanthropy summit to recognize leaders in the community. Peter Beaupré, president and COO of PCL Construction Enterprises, Inc., was nominated for the award by the Mile High United Way, and was selected Corporate Citizen of the Year based on his philanthropic commitment to the community and integration of charitable commitment into our company culture.
Phil Rattai
General Superintendent

In his forty-three years with PCL, Phil Rattai has “covered the waterfront” of PCL districts and locations. He has worked in the American heartland, the Midwest, and in coastal states like California and Hawaii. He nevertheless still finds ways to explore new terrain. His current assignment—he recently came to Vail, Colorado, to help complete the $200-million Ritz-Carlton Residences—is his first experience in a mountain division. The ability to draw on a wealth of experience comes in handy when dealing with challenges on the job. Some challenges are particular to a region, whereas others are universal. “You might remember the solution to a shoring problem you had in Iowa,” says Rattai, “and apply that knowledge in Illinois.”

Rattai is based in Minneapolis, home to some of his landmark projects. The American Express Client Service Center, completed in 2002, is a fourteen-floor office tower where 5,000 employees go to work each day. Building the Science Museum of Minnesota was another memorable experience: the museum has the first convertible dual-screen IMAX/Omnimax theater in the northern hemisphere and the largest permanently installed electronic cinema projector in the world.

PCL’s secret to being a construction leader with clients is, for Rattai, no secret. His open-door policy means he is never too busy to listen to a client’s concerns, and he will help find a solution, either with the team onsite or in consultation with the construction manager or architect. “This is part of building best value for the money the client is spending,” he explains. “We demonstrate a long-term commitment to them, not just for the duration of a project. PCL has a long history, and we always hope to work with clients again.”

Jeff Watson
Superintendent

From the Canadian Broadcasting Corporation Building in Saskatchewan to the Long Range Radar Station in Labrador (built for Canada’s Department of National Defence), Jeff Watson has traveled almost the full breadth of Canada in the service of PCL and our clients. He is now based in Winnipeg, where in recent years the local healthcare market has occupied his talents. The $105-million Health Science Centre Critical Services Redevelopment project, for example, is Manitoba’s designated trauma center and the largest specialized-care teaching hospital in the province.

Watson’s current project is the Canadian Museum for Human Rights (CMHR) in Winnipeg. This building, when it is completed in 2012, will be a landmark structure and one of Canada’s most important national museums.

Jeff’s insistence that each project has a unique character is reflected in the dedication he brings to every job. Innovative solutions to challenges come, in Watson’s view, with open minds, when all team members are encouraged to see their own potential as problem solvers. “No idea is a bad one when you are brainstorming an issue,” he emphasizes. Common to every project, naturally, is the Owner’s desire to see a building completed in a cost-effective and timely manner, something Watson does not take for granted. “Delivering a project on time and on budget takes good communication and a lot of attention to the schedule,” he explains. “When everyone knows the plan, and the direction is clear, the work gets done and done right. This demonstrates to our clients that we are on top of their project and helps them sleep at night, knowing they have PCL on their team.”

Phil is an exceptional leader and facilitator for the entire team. Phil possesses the unique ability to break down and understand complex problems while uniting the team to work toward a common goal. —Graham Frank, senior project manager, Vail Resorts Development Company

I had the honor of working with Jeff in the field when he wore a tool belt and I had a transit. We have worked side by side on numerous projects in some strange places, and I have learned a great deal from this great superintendent over the years. —Sean Barnes, district manager, PCL Constructors Canada Inc. (Winnipeg)
The PCL family of companies is composed of a number of independent companies which operate in various construction markets or geographic areas.

Buildings

Our full-service buildings operations support the work of project sites across North America. This network of construction professionals rises to the challenges associated with our extensive buildings portfolio, bringing added value to every commercial, institutional, educational, and residential project. While we’re better known for our larger projects such as airports, sports facilities, and office towers, we also excel at smaller unique projects such as renovations, restorations, and repairs.

Heavy Industrial

Our industrial companies, which are located strategically throughout North America, respond to the unique construction needs of our clients in the petrochemical, oil and gas, refining and oilsands, mining, and power and cogeneration industries. In addition to offering Construction Management services, we offer a full range of general contracting services, specializing in mechanical, civil, and electrical construction; pipe and vessel fabrication and module assembly; and piping and plant shutdowns/turnarounds.

Civil Infrastructure

By nature, civil work is geographically diverse and extremely demanding. This has made us versatile civil builders—equally at home building on land or over water, in busy cities, or in remote areas. Our civil teams possess the ingenuity and the experience needed to undertake any civil structure imaginable—from bridges, overpasses, tunnels, and interchanges to water and wastewater facilities, pipelines, and light-rail transportation projects.